



WasteBasedBrick®

PROCESSING GUIDELINE





At StoneCycling we work hard on the next generation of sustainable building materials. Here's how to use them in your next project.

DELIVERY AND STORAGE

Place the brick packages on a clean, dry and flat surface (for example on scaffolding parts), so that the bricks are stable and no water and dirt can penetrate into the bricks. Protect the packages against watering and contamination by covering; aeration must be possible. Keep the packaging film of the brick packages open on the non-rainy side during storage.

STACKING

Stack and process bricks from several packaging units at the same time to prevent undesired colour differences in the facade and to achieve an even distribution of the colour nuances in the masonry.

PROCESSING MOISTURE

The moisture of masonry brick during processing may not be higher or lower than the masonry mortar suitable for the brick allows. In case of doubt, the water absorption of the bricks can be determined on the construction site.

MASONRY MORTAR

Match joint hardness and brick. For masonry in exterior walls, use mortar application type A in accordance with BRL 1905 "Mortars for masonry". Use mortar application type A modified with trass for quay walls and soil retaining walls. Preferably use a prefab masonry mortar that comes with a KOMO quality declaration. This guarantees a constant quality level. Request detailed masonry mortar advice from the producer of the prefab masonry mortar, who specifies the conditions for processing the masonry mortar in combination with the stated performance of the masonry brick in the advice. The masonry mortar quality in accordance with NEN-EN 998-2 (M5 - M15) must be determined in consultation with the architect/structural engineer.

When the masonry mortar is prepared on the construction site, the following proportion in the composition of the parts by volume can be used for processing a normally absorbent brick, from class IW3 according to BRL 1007 "Masonry brick", during the summer period: Portland cement : lime : sand = 1 : 1 : 5. For the winter period, the ratio in the composition of the parts by volume is 1 : 0.5 : 4.5.

In order to achieve good stackability and optimum construction speed, the coarse fraction C4-C5,6 may make up a maximum of 10% to 15% of the sand package for bricks with a low specific water absorption, or use concrete sand 0-4 for this. Do not use admixtures in masonry mortar that is prepared and prepared on the construction site. The processing time for masonry mortar is a maximum of two hours. A maximum storage time of twelve hours is recommended for wet precast masonry mortar with a set retarder.

JOINT MORTAR

Joint mortar must meet the requirements of CUR Recommendation 61 "Joining and hydrophobizing masonry". Preferably use a prefab joint mortar that is supplied with a KOMO quality declaration, which guarantees a constant quality level. Request detailed joint mortar advice from the producer of the prefab joint mortar, who will specify the conditions for processing the joint mortar in the advice. The joint mortar quality in accordance with CUR Recommendation 61 (VH15 - VH45) must be determined in consultation with the architect. For joint mortar prepared on the construction site, maintain a composition ratio in parts by volume in accordance with CUR Recommendation 61. Due to a high risk of "burning", blast furnace cement is not recommended for jointing. The sand must comply with NEN-EN 998-2 "Mortars for masonry" and BRL 1905 "Mortars for masonry" with the exception of the prescribed grain size distribution. The provisions of CUR Recommendation 61 apply to this.

BRICKLAYING

Carry out a total visual inspection of the surrounding (supporting) construction with regard to dimensions, flatness, anchoring, stability and perform the masonry in accordance with the KOMO process certification of Masonry structures.

The following guidelines apply for this:

- National Assessment Directive for the Manufacture of Masonry and Glue Constructions and/or Jointing SKG-IKOB publication BRL 2826
- Implementation Guideline for Masonry Constructions (Brick, building blocks and bricks of concrete, aerated concrete and sand-lime brick) SKG- IKOB publication no. PBL 0357
- Implementation guideline for masonry joints SKG-IKOB publication no. PBL 0359
- Implementation guideline for bonding facade bricks SKG-IKOB publication no. PBL 0475

The weather conditions (outside temperature) and the humidity of masonry brick at the time of processing deserve attention. If the outside temperature is low, the mortar to be used will have to be adjusted accordingly.

The use of too dry or too wet bricks can lead to poor workability and/or to poor adhesion of the masonry mortar. In general, the following recommendations apply: stones with an initial water absorption of $< 1.5 \text{ kg/m}^2 \cdot \text{min}$ (class IW1 and IW2) - dry processing, stones with an initial water absorption of $\geq 1.5 - < 4.0 \text{ kg/m}^2 \cdot \text{min}$ (class IW3) - wind-dry processing, stones with an initial water absorption of $\geq 4.0 \text{ kg/m}^2 \cdot \text{min}$ (class IW4) - pre-wetting.

If a prefab masonry mortar is used, always follow the advice of the masonry mortar manufacturer who indicates the conditions for the processing of the masonry mortar and the masonry brick. Bricks that are too dry can be made suitable for processing by slightly wetting the brick packages for one to two days before processing and allowing them to dry only on the top side, so that the bricks can be processed wind-dry – i.e. dry on the outside and moist inside.



Carry out the masonry in the prescribed bond according to the requirements of good workmanship. In order to achieve an optimal bond between brick and mortar, it is important that the joint is fully filled with mortar, without air pockets. This is especially important when laying bricks continuously.

Process the best looking side of the brick in sight and the possibly sanded side upwards. Lay bricks with a frog (cavity on the flat sanded side) with the frog facing up.

An expansion joint plan is recommended to prevent cracking in the masonry. Expansion joints must be done carefully. For all StoneCycling ceramic products, a customised expansion joint advice is given, carried out by the TCKI.

A vertical expansion joint is understood to mean a vertical joint with a width of 5 mm, whether or not filled with rot-resistant compression tape, and present over the entire wall thickness of the masonry. Please note: a cut joint (joint width 0 mm) does not count as an expansion joint. In buildings higher than 15 metres, the expansion joints must be filled with a compression band. A horizontal expansion joint (at the location of a masonry support) is understood to mean a horizontal joint with a width of 10 mm between the bottom of the facade support and the top of the masonry below, filled with oil-free sealant on backing infill, over the entire wall thickness of the masonry.

Expansion joints must be completely free of masonry- and joint mortar.

To enable proper aeration and drainage of the air cavity, one head joint per three to four stretches must be left open at all horizontal terminations of the masonry, such as below and above a window frame. For good drainage of moisture that can get behind the outer leaf, one head joint per two stretches must be left open at the location of the connection of the masonry to the foundation.

Cavity anchors must be incorporated into the fully applied masonry mortar of the horizontal joint, in such a way that after laying the next layer of bricks, the anchors are in the middle of the horizontal joint. No moisture transport to the inner leaf may be possible via cavity anchors. Under no circumstances anchor windows to the outer leaf. Do not use sliding anchors in vertical expansion joints.

Masonry reinforcement must be placed in the middle of the masonry mortar of the bed joint. Method: first apply half of the required amount of masonry mortar, then place the reinforcement and then apply the remaining amount of masonry mortar. There are different qualities of masonry reinforcement for indoor and outdoor use. In outdoor applications, at least provide galvanised reinforcement with epoxy coating or use stainless steel reinforcement.

The effective air cavity must be at least 20 mm. Effective air cavity is understood to mean the space between the insulating material and the excess mortar, chopped masonry bricks or other irregularities. This means that the design phase must be based on a design cavity width of at least 40 mm + insulation thickness. This principle is also included in the requirements for GIW guarantee. During masonry, the air cavity must be kept free of spilled mortar and pieces of brick that cause moisture bridging between the outer leaf and the inner construction. Prevent the formation of excess mortar on the cavity side as much as possible and also pay attention to other protruding parts such as chopped bricks.

After bricklaying, the mortar must be scraped out so deeply that the joint depth is equal to the average thickness of a bed joint and head joint (square cross-section). The scratched-out masonry should be brushed out with a stiff brush.

Lay bricks in such a way that the smearing of masonry mortar on the bricks is prevented. If stains have appeared on the masonry, they must be removed before jointing. Particular attention deserves the processing of glazed brick. The etching effect of lime hydrate must be taken into account, which can cause dull spots on the glazed brick surface. Mortar stains on glazed bricks must be removed immediately.

Avoid soiling the masonry. Protect the underside of the masonry against splash water if there is a risk of this. In order to protect the masonry against splashing water from the scaffolding, it is recommended to fold down the first scaffolding section at the facade. Preferably do not work with the single scaffold system.

Prevent the occurrence of leaching, cement veil and loss of adhesion by adequately protecting the fresh masonry against drying out and watering for at least 48 hours and preferably even longer. Also prevent the insulation material from getting wet during and after the implementation. Preferably work with a scaffold with a gauze cloth and hood. If this is waived, the use of a lightweight plastic cover profile is recommended. See also the KNB publication "Clean masonry".

When laying bricks continuously, it is recommended to take protective measures against rainwater and drying out to prevent colour differences in the joint surface as a result of changing weather conditions. The chance of a colour difference is further reduced by using a coloured spreading mortar.

Using hydrochloric acid to remove leaching is strongly discouraged. Only use cleaning agents that are suitable for masonry and based on sulfamic acid. See also the KNB publication "Clean masonry".

It is recommended not to lay bricks at daytime temperatures lower than 0° C. If bricklaying is continued nevertheless, it is recommended to take protective measures. In that case, follow the instructions of the masonry mortar manufacturer when using prefabricated masonry mortar. Do not process frozen masonry stones.

JOINTING

For jointing, the masonry must not be too dry or too wet. The ideal situation is that the masonry has been cured for 28 days or more, after which it is liberally moistened (one day before jointing). Wait as long as possible before jointing, especially with a brick that absorbs less water. This greatly reduces the risk of later leaching formation. It is recommended to allow at least a period of two weeks between bricklaying and jointing.

Before starting the jointing, dust and masonry mortar residues must be removed.

The square section of the joint must be completely filled and the joint mortar must be well pressed. For standard jointing, this means that the joint must be approximately 10 to 12 mm deep.

During jointing, avoid filling the expansion joints and open head joints and check after jointing whether all open expansion joints and open head joints are completely free of mortar. The occurrence of colour differences in the jointing (“scaffolding strokes”) as a result of varying weather conditions must be taken into account. To prevent this, it is recommended to take protective measures.

Joint in such a way as to prevent mortar from smearing on the stones. Particular attention deserves the processing of glazed brick. The etching effect of lime hydrate must be taken into account, which can cause dull spots on the glazed brick surface. Mortar stains on glazed bricks must be removed immediately.

Avoid soiling the masonry. Protect the underside of the masonry against splash water if there is a risk of this. In order to protect the masonry against splashing water from the scaffolding, it is recommended to fold down the first scaffolding section at the facade. Preferably do not work with the single scaffold system.

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Using hydrochloric acid to remove leaching is strongly discouraged. See also the KNB publication “Clean masonry”.

It is recommended not to joint bricks at daytime temperatures lower than 5° C. If jointing is continued nevertheless, it is recommended to take protective measures. When using prefab joint mortar, follow the instructions of the joint mortar manufacturer in that case.

CONTINUOUS BRICKLAYING

Place the profiles in such a way that you can also continue bricklaying behind the profiles. The masonry wire is set up with a special auxiliary block.

When laying bricks, the head/bed joints must be fully filled with mortar, without air pockets. The masonry mortar can continue to be used when the mortar has the right consistency, but is still elastic enough to be finished smoothly. Determining this moment depends on the absorbent character of the stone and the weather conditions under which the masonry is laid.



WORKING CONDITIONS

Construction work is often tough. That is why the brick industry has developed the fully mechanical divisible brick package. The transport from the factory to the scaffolding can therefore take place completely mechanically. As a result, it is not necessary to lift and transport the bricks manually, which means considerable relief for the bricklayer. At the same time, the scaffolding suppliers have developed systems so that the mason no longer has to bend deeply or reach high. This has demonstrably reduced the load on the back. For a correct working method in which the physical load is limited as much as possible, it is recommended to work in accordance with the A-sheet "Bricklaying and Glueing" of Stichting Arbouw.

WORKABILITY

Fine dust can be released during the treatment and processing of stone-like materials. So also when working and processing brick. Think of mechanical actions such as drilling, milling, chopping, sanding, grinding or sawing. It is therefore recommended that you always take personal protective measures (dust face covers type P3/FFP3) during mechanical processing of bricks that prevent the inhalation of potentially harmful dust particles. Furthermore, it is always recommended to carry out the operations with a water supply so that dust cannot spread. If this is not possible, the dust must be extracted close to the source. In general, good ventilation limits dust concentrations in rooms.

Always use the necessary personal protective equipment and observe the safety instructions of the suppliers of the tools. Wear safety gloves, safety glasses, safety shoes and also good hearing protection.

We invite you to discover the possibilities of the WasteBasedBricks® and together make sustainable building the standard.

StoneCycling

Sustainable Building Materials

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